PROJECT DESCRIPTION:_____

25% HIGHWAY DESIGN REVIEW CHECKLIST

PURPOSE

The 25% highway design review is intended to provide MassHighway the opportunity to evaluate the proposed design relative to current design standards, right of way impacts, environmental impacts and other potential community concerns associated with the proposed design.

GENERAL

This checklist represents the minimum amount of issues that should be considered when reviewing a 25% highway submittal. The information below is not intended to address all aspects of plan preparation. To the extent practical, any comments relative to plan preparation made at the 25% stage will certainly improve the quality of the 75% submittal.

Any question listed below with a No (N) or Not Applicable (NA) answer will require a written comment.

PLANS

	Y	N	NA	1.00 Title Sheet
1.01	☐	☐	☐	Is the Title Sheet prepared consistent with Figure 2-8 & 2-8a?
				Comment: _____
1.02	☐	☐	☐	Is the DESIGN DESIGNATION table completed?
				Comment: _____
1.03	☐	☐	☐	Does the Design Speed correlate with Table 3.6, or the design speed identified in the Design Exception Report, if applicable?
				Comment: _____
1.04	☐	☐	☐	Are the stations and coordinates for the beginning and end of project shown on the locus map?
				Comment: _____
1.05	☐	☐	☐	Are bridge numbers shown on the locus map?
				Comment: _____

	Y	N	NA	2.00 Typical Sections
2.01	☐	☐	☐	Do the proposed lane and shoulder widths shown on the typical sections properly account for the offset dimension?
				Comment: _____
2.02	☐	☐	☐	Are the proposed lane and shoulder widths consistent with Table 5.1, or the Design Exception Report, if applicable?
				Comment: _____
2.03	☐	☐	☐	Is the method of banking adequately represented on the Typical Sections in manner consistent with Section 4.3?
				Comment: _____
2.04	☐	☐	☐	Is the location of the PGL the most appropriate location for the proposed project?
				Comment: _____

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	Y	N	NA	2.00 Typical Sections (Cont.)
2.05	☐	☐	☐	Does the shoulder break away from travel lanes when the width is greater than 1.25 m?
				Comment:
2.06	☐	☐	☐	Is the proposed pavement structure appropriate (full depth, reclamation, overlay)?
				Comment:
2.07	☐	☐	☐	Are the pavement structure materials labeled consistent with the latest STANDARD NOMENCLATURE AND LIST OF STANDARD ITEMS?
				Comment:
2.08	☐	☐	☐	Is the proposed wearing surface compatible with the function of the proposed roadway?
				Comment:
2.09	☐	☐	☐	If a narrow (less than 1.2 m) box widening is proposed, was Cement Concrete Base Course considered in lieu of full depth pavement?
				Comment:
2.10	☐	☐	☐	Are the guardrail details consistent with the CONSTRUCTION AND TRAFFIC STANDARD DETAILS?
				Comment:
2.11	☐	☐	☐	Figures 5-9 through 5-14 provided general guidance on a variety of cross section elements for each Functional Classification. Are the proposed Typical Sections consistent with these figures relative to dimensions, slopes and materials?
				Comment:
2.12	☐	☐	☐	If retaining walls are proposed, does the design allow for guardrail to be adequately installed? Guardrail located on top of an existing or proposed stone masonry wall generally requires a moment slab.
				Comment:

	Y	N	NA	3.00 Construction Drawings
3.01	☐	☐	☐	Is the existing Base Plan information plotted consistent with Section 2.1.1.2?
				Comment:
3.02	☐	☐	☐	Is the proposed horizontal geometry adequately described? (PC, PT, R, T, DELTA, L)?
				Comment:
3.03	☐	☐	☐	Is the minimum radius consistent with Table 4.2 based on the Design Speed noted on the Title Sheet?
				Comment:
3.04	☐	☐	☐	If compound curves are employed, are they designed in accordance with Section 4.1.1.2?
				Comment:
3.05	☐	☐	☐	Are there any features which negatively impact horizontal sight distance as described in Section 4.1.3?
				Comment:
3.06	☐	☐	☐	Are cross culverts and drainage outlet locations shown on the plans?

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25% HIGHWAY DESIGN REVIEW CHECKLIST

Comment: _____

	Y	N	NA	3.00 Construction Drawings (Cont.)
3.07	☐	☐	☐	Are approximate slope limits shown?
				Comment: _____
3.08	☐	☐	☐	Based on the cross-sections provided and other available information are the proposed guardrail locations appropriate?
				Comment: _____
3.09	☐	☐	☐	Have the impacts to existing wetlands and other resource areas been minimized?
				Comment: _____
3.10	☐	☐	☐	Does the proposed design reasonably accommodate vehicle turning movements based on the turning paths transparencies included in Chapter 7?
				Comment: _____
3.11	☐	☐	☐	If applicable, are storage and deceleration lengths consistent with Section 7.2.3.2?
				Comment: _____
3.12	☐	☐	☐	Is the proposed design consistent with ADA and AAB requirements?
				Comment: _____
3.13	☐	☐	☐	Are stations at the beginning and end of project noted?
				Comment: _____
3.14	☐	☐	☐	Is the existing layout information accurately depicted?
				Comment: _____
3.15	☐	☐	☐	Are the approximate limits of proposed takings and easements shown?
				Comment: _____
3.16	☐	☐	☐	Is sufficient right of way available to perform the work?
				Comment: _____

	Y	N	NA	4.00 Profiles
4.01	☐	☐	☐	Is the existing base profile information plotted consistent with Section 2.1.1.3? (station equations, cross culverts, bridge structures, sills of structures, high tension lines, bench marks, etc.)
				Comment: _____
4.02	☐	☐	☐	Are the proposed profiles prepared consistent with Figure 2-6?
				Comment:
4.03	☐	☐	☐	Are all aspects of the vertical geometry noted (Stopping Sight Distance, Passing Sight Distance (if applicable), G1, G2, L, K, station and elevation of the PVC, PVT and PVI)?
				Comment: _____
4.04	☐	☐	☐	Is the stopping sight distance consistent with the Design Speed noted on the Title Sheet and Table 3.9?
				Comment: _____
4.05	☐	☐	☐	Is the K value consistent with the Design Speed noted on the Title Sheet and Table 4.4 or 4.5?
				Comment: _____

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25% HIGHWAY DESIGN REVIEW CHECKLIST

Y N NA 4.00 Profiles (Cont.)

4.06 ☐ ☐ ☐ Is the maximum grade consistent with the Design Speed noted on the Title Sheet and Table 4.3?

Comment: _____

4.07 ☐ ☐ ☐ Is the minimum grade consistent with Section 4.2.1? If a closed drainage system is proposed it is recommended that a minimum grade of 0.6% be used.

Comment: _____

Y N NA 5.00 Traffic Signal Plans

5.01 ☐ ☐ ☐ Are signal heads located in the vision cone specified by the MUTCD?

Comment: _____

5.02 ☐ ☐ ☐ Are pavement markings clearly displayed and labeled?

Comment: _____

5.03 ☐ ☐ ☐ Does the Phasing Diagram adequately address pedestrian volumes? (pedestrian phases concurrent or actuated)

Comment: _____

5.04 ☐ ☐ ☐ If appropriate does the Phasing Diagram address emergency preemption?

Comment: _____

Y N NA 6.00 Traffic Management Plans (may be 8-1/2 x 11 for simple projects)

6.01 ☐ ☐ ☐ Does the TMP provide sufficient information to determine that the proposed project can be constructed without undue inconvenience to the public?

Comment: _____

6.02 ☐ ☐ ☐ For projects with a detour, is the proposed detour reasonable considering available traffic data?

Comment: _____

6.03 ☐ ☐ ☐ Does the proposed TMP adequately address bicycle and pedestrian accommodation?

Comment: _____

7.00 Cross Sections (Although only top line sections in critical areas are required according to the Highway Design Manual, the latest engineering software makes providing all cross sections a simple matter. The top line information is intended to depict the relationship between the proposed roadway and the existing features only. However to the extent that additional information is provided, it is worthwhile to comment relative to consistency with Section 2.1.2.5.)

Y N NA

7.01 ☐ ☐ ☐ Is the existing cross-section information plotted consistent with Section 2.1.1.4 and Figure 2-2? Are walls, hydrants, poles, trees over 200 mm, sills, wells, septic systems, cross culverts, ledge, layout lines, etc. plotted on the cross-sections?

Comment: _____

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	Y	N	NA	7.00 Cross Sections (Cont.)
7.02	☐	☐	☐	Does the proposed cross-section provide sufficient area to install guardrail where necessary?
	Comment:			
7.03	☐	☐	☐	Have the proposed side and back slopes been appropriately chosen to balance impacts with safety and slope stability?
	Comment:			

SPECIAL CONSIDERATIONS

	Y	N	NA	8.00 Projects that include bridge(s)
8.01	☐	☐	☐	Is the project subject to MassHighway's Non-NHS Bridge R&R Policy? (According to Engineering Directive P-92-010 in order for these guidelines to apply the roadway must be classified as either a Minor Arterial, Urban Extension of a Minor Arterial, Collector or Local roadway)
	Comment:			
8.02	☐	☐	☐	If the project is subject to P-92-010 is the proposed bridge width and approach geometry consistent with the Engineering Directive?
	Comment:			
8.03	☐	☐	☐	For bridge projects that are not subject to P-92-010 are the proposed bridge dimensions and vertical clearance consistent with Section 5.4?
	Comment:			
8.04	☐	☐	☐	Do the construction drawings adequately depict the existing bridge structure including subsurface features?
	Comment:			
8.05	☐	☐	☐	Do the construction drawings adequately depict the relationship between the existing and the proposed bridge structure?
	Comment:			
8.06	☐	☐	☐	Does the TMP provide adequate dimensions such that the relationship between the lane configurations and the beam spacing of both the existing and the proposed structure can be evaluated?
	Comment:			
8.07	☐	☐	☐	Do the plans and cross-sections indicate that sufficient space is available to install approach guardrail?
	Comment:			

9.00 Freeways

The review of Freeway designs, particularly those involving grade separated interchanges does not lend itself well to a checklist type review. The design of a grade separated interchange must be evaluated based on the entire contents of Chapter 6. Listed below are some of the key items that should be reviewed.

	Y	N	NA	
9.01	☐	☐	☐	Is the proposed cross-section consistent with Figure 5-9 and 5-10?
	Comment:			

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	Y	N	NA	9.00 Freeways (Cont.)
9.02	☐	☐	☐	Is the median barrier provided consistent Figure 9-3?
	Comment:			
9.03	☐	☐	☐	Is the ramp spacing consistent with Figure 6-12?
	Comment:			
9.04	☐	☐	☐	Are the deceleration and acceleration lengths consistent with Table 6.1 and Table 6.2?
	Comment:			
9.05	☐	☐	☐	Are the selected ramp design speeds consistent with Table 6.4?
	Comment:			
9.06	☐	☐	☐	Does the minimum radius meet the criteria in Table 6.5?
	Comment:			
9.07	☐	☐	☐	Are the ramp cross sections consistent with Section 6.6.1.2 and Figures 6-18 and
	Comment:			
9.08	☐	☐	☐	Is the ramp geometry consistent with the guidelines provided in Figures 6-21 through 6-29?
	Comment:			

	Y	N	NA	10.00 ESTIMATE
10.01	☐	☐	☐	Is sufficient back up information provided to determine if the preliminary estimate is reasonable?
	Comment:			
10.02	☐	☐	☐	Does the estimate anticipate inflation as result of the project's proposed advertising date?
	Comment:			
10.03	☐	☐	☐	Does the estimate include increase for contingency, contract administration, traffic police, etc.?
	Comment:			

11.00 FUNCTIONAL DESIGN REPORT

Refer to guidance from MassHighway's Traffic Section.

12.00 DESIGN EXCEPTION REPORT

Refer to Chapter 8 of the Highway Design Manual and the Design Exception Report Checklist.

	Y	N	NA	13.00 CONCLUSIONS
13.01	☐	☐	☐	Is the scope of work consistent with the scope approved by PRC?
	Comment:			
13.02	☐	☐	☐	Is the estimated total construction cost consistent with the STIP?
	Comment:			

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25% HIGHWAY DESIGN REVIEW CHECKLIST

	Y	N	NA	13.00 CONCLUSIONS (Cont.)
13.03	☐	☐	☐	Does the project address known geometric and safety concerns?
	Comment:			
13.04	☐	☐	☐	Do the plans represent a project that is reasonable from a constructability standpoint with respect to construction techniques and available right of way?
	Comment:			
13.05	☐	☐	☐	Is a letter of support and all correspondence with local historic commissions included?
	Comment:			
13.06	☐	☐	☐	Are the plans suitable for conducting a Design Public Hearing?
	Comment:			